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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,193	06/21/2001	David F. Craddock	AUS920010469US1	6524

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EXAMINER

OSMAN, RAMY M

ART UNIT

PAPER NUMBER

2157

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/886,193	<b>Applicant(s)</b> CRADDOCK ET AL.	
	<b>Examiner</b> Ramy M. Osman	<b>Art Unit</b> 2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*HL*

## DETAILED ACTION

### *Status of Claims*

1. This communication is responsive to the supplemental amendment filed on February 25, 2005. Claims 1-42 are pending. The rejections cited are as stated below.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1-5,7-13,15-19,21-27,29-33 and 35-41 rejected under 35 U.S.C. 102(e) as being anticipated by Pettey et al (US Patent No 6,594,712).**

4. In reference to claims 1,15 and 29, Pettey teaches a method, a program and a corresponding data processing system, having a host, for performing an input/output transaction, comprising:

    sending a memory address of a request to an adapter, via a first remote direct memory access over a network (column 1 lines 15,16 & 27-53, column 6 lines 15-30 & 45-55, column 11 lines 27-32, column 15 lines 5-30 and figure 1, Pettey discloses sending a virtual address via RDMA);

retrieving the request from the host, under the control of the adapter, via a second remote direct memory access over the network; and initiating, under the control of the adapter, a remote direct memory access transfer with the host responsive to the request (column 1 lines 27-53, column 11 lines 31-37, column 15 lines 5-30 and figure 16, Pettey discloses retrieving request and transfer via RDMA).

5. In reference to claims 2,16 and 30, Pettey teaches the method, the program and the data processing system respectively of claims 1,15 and 29, wherein the transfer includes the adapter's reading memory from the host (column 1 lines 40-45 and column 15 lines 5-15).

6. In reference to claims 3,17 and 31 Pettey teaches the method, the program and the data processing system respectively of claims 1,15 and 29, wherein transfer includes the adapter's writing to memory of the host (column 1 lines 40-45 and column 15 lines 15-30).

7. In reference to claims 4,18 and 32 Pettey teaches the method, the program and the data processing system respectively of claims 1,15 and 29, wherein the request includes remote direct memory access parameters (column 12 line 57 – column 13 line 57).

8. In reference to claims 5,19 and 33 Pettey teaches the method of claim 4,18 and 32 respectively, wherein the remote direct memory access parameters include at least one of a transaction ID, a list of request and data remote memory data segments, a type of storage command, an identification of a storage device, an address on a storage device, and a data length (column 13 lines 17-57).

9. In reference to claims 7,21 and 35, Pettey teaches a method, a program and a data processing system respectively, having an adapter, for performing an input/output transaction, comprising:

Receiving, over a network via a first remote direct memory access, the address of a request from a host (column 1 lines 15,16 & 27-53, column 6 lines 15-30 & 45-55, column 11 lines 27-32, column 15 lines 5-30 and figure 1, Pettey discloses sending a virtual address via RDMA);

Retrieving, over the network via a second remote direct memory access, the request; and performing a remote direct memory access transfer with the host, based on the request (column 1 lines 27-53, column 11 lines 31-37, column 15 lines 5-30 and figure 16, Pettey discloses retrieving request and transfer via RDMA)In reference to claims 8,22 and 36, Pettey teaches the method, program and data processing system respectively of claims 7,21 and 35, wherein the transfer includes reading memory from the host (column 2 lines 5-10).

10. In reference to claims 8,22 and 36, Pettey teaches the method, the program and the data processing system respectively of claims 7,21 and 35, wherein the transfer includes the adapter's reading memory from the host (column 1 lines 40-45 and column 15 lines 5-15).

11. In reference to claims 9,23 and 37, Pettey teaches the method of claim 8,22 and 36 respectively, further comprising: writing data from the memory to a storage device (column 1 lines 40-45 and column 15 lines 15-30).

12. In reference to claims 10,24 and 38, Pettey teaches the method, program and data processing system respectively of claims 7,21 and 35, wherein the transfer includes writing to memory of the host (column 1 lines 40-45 and column 15 lines 5-30).

13. In reference to claims 11,25 and 39, Pettey teaches the method of claims 10,24 and 38 respectively, further comprising:

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reading, from a storage device, data to be written to the memory (column 1 lines 40-45 and column 15 lines 5-30).

14. In reference to claims 12,26 and 40, Pettey teaches the method, program and data processing system respectively of claims 7,21 and 35, wherein the request includes remote direct memory access transfer parameters (column 12 line 57 – column 13 line 57).

15. In reference to claims 13,27 and 41, Pettey teaches the method of claims 12,26 and 40 respectively, wherein the remote direct memory access parameters include at least a transaction ID, a list of request and data remote memory data segments, a type of storage command, an identification of a storage device, an address on a storage device and a data length (column 13 lines 17-57).

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. **Claims 6,14,20,28,34 and 42 rejected under 35 U.S.C. 103(a) as being unpatentable by Pettey et al (US Patent No 6,594,712) in view of Avery (US Patent No. 6,813,653).**

18. In reference to claims 6,20 and 34 Pettey teaches the method, the program and the data processing system respectively of claims 1,15 and 29. Pettey teaches an Acknowledge requested field, which shows that an acknowledgment can be received in RDMA operations (column 12 lines 50-57). Pettey fails to explicitly teach receiving a confirmatory response via remote direct memory access transfer from the adapter. However, Avery teaches sending an acknowledgment

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message from one adapter to another adapter using RDMA operations in an Infiniband system (column 5 lines 50-67 and column 6 line 50 – column 7 line 5).

It would have been obvious for one of ordinary skill in the art to modify Pettey by receiving a confirmatory response via remote direct memory access transfer from the adapter so that the RDMA operation can be acknowledged that it was completed.

19. In reference to claims 14,28 and 42, Pettey teaches the method, program and data processing system respectively of claims 7,21 and 35. Pettey teaches an Acknowledge requested field, which shows that an acknowledgment can be received in RDMA operations (column 12 lines 50-57). Pettey fails to explicitly teach sending a confirmatory response via remote direct memory access transfer from the adapter. However, Avery teaches sending an acknowledgment message from one adapter to another adapter using RDMA operations in an Infiniband system (column 5 lines 50-67 and column 6 line 50 – column 7 line 5).

It would have been obvious for one of ordinary skill in the art to modify Pettey by sending a confirmatory response via remote direct memory access transfer from the adapter so that the RDMA operation can be acknowledged that it was completed.

#### ***Response to Amendment***

20. The examiner acknowledges the amendments filed February 25, 2005 where applicant amended claims 1,6,7,13,14,15,19-21,27-31,33-35,41 and 42.

#### ***Response to Arguments***

21. Applicant's arguments with respect to claims 1-42 have been considered but are moot in view of the new ground(s) of rejection.

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramy M. Osman whose telephone number is (571) 272-4008. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMO  
April 21, 2005

  
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